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ABSTRACT

The study reported here examined the long term impact of a bilingual program that was designed as a transitional program for children in elementary grades. A quasi-experimental design was used to compare two groups of Mexican-American tenth-grade students enrolled in a traditional high school where all subject matter was presented in English. The experimental group (n=86) had previously been taught one or more years in an elementary bilingual education program. The control group (n=90) had had all its schooling in English. The students' seventh-grade and tenth-grade records were examined for these variables: grade point average, absenteeism, grade repetition in elementary and secondary grades, dropout rates at the completion of junior high school, and the completion of tenth grade. Results revealed no differences in grade point average in either period. The control group had a statistically significant higher rate of absenteeism during two quarters of the seventh-grade year, a significantly higher grade repetition rate at all levels, and a higher frequency of dropouts in both periods studied. (Author/MSE)

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Impact of Early Exposure to Bilingual Education as Related to School grades, absenteeism, grade retentions and Incidence of School Drop-out: A ten year Study.

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ABSTRACT

A quasi-experimental design was used to compare two groups of Mexican-American tenth-grade students enrolled in a traditional high school where all subject matter was presented in English. The experimental group (N=86) had previously been taught one or more years in an elementary bilingual program. The control group (N=90) consisted of students who had had all their schooling in English. The same group of students were compared at the completion of seventh grade on English reading, (comprehension, vocabulary and language skills) grade point average and self esteem. The dependent variables examined for purposes of this study included grade point average, absenteeism, retentions and drop-out rates at the completion of junior high school and the completion of tenth grade. Results revealed no differences in grade point average at either period. The control students experienced a higher incidence of absences in two periods, one was statistically significant. The control students experienced a higher number of retentions and drop-outs in all time periods observed, this was statistically significant in all with one exception, retentions in high school.

Introduction

Bilingual-bicultural education continues to be controversial, it means different things to different people. Critics of bilingual bicultural education assail the programs as expensive, impractical and un-American. Supporters argue that the programs are cost effective when the residual consequences are considered, it is easier to develop a vocabulary, learn to read in a language that is already spoken (Hilgard & Bower, 1975). The programs adhere to sound educational principles i.e. starting where the learner is and they represent hope for a class of students whose native language and cultural norms have set them apart with negative consequences for both the student, the educational institution and society. The challenge to American education is to reduce student unnecessary frustration and increase teacher success with students who commence school as non-English speakers. Takesian (1967) posits that the school dropout problem develops in elementary school when the potential dropout for the first time learns that "he/she is somehow different." It is here that the student develops a dislike for school when he/she experiences little else but frustration, tension and rejection. In this atmosphere of confusion and self-doubt, the student psychologically leaves and later, when of age, leaves physically. A child who starts off with frustration or failure may never catch up. A low self-image, lack of motivation, and unsatisfactory performance are often interrelated handicaps to a child whose initial instruction is in a foreign language (Saville and Troike, 1973). The merits of bilingual education have been debated since the passage of the Bilingual Education Act of 1968 and before then. While it is true that political considerations are at the center of this debate, bilingual education will ultimately flourish or decline on the basis of the degree to which the programs are able to demonstrate short and long term gains for language minority pupils and demonstrate this to the public.

Various researchers have investigated the effects of bilingualism (Peal & Lambert, 1962) and bilingual instruction (Cummins, 1981; Leyba, 1978; Saldate et al, 1985; Barclay,

1983; Troike, 1978; Croft & Franco 1983; Curiel, 1979; Powers and Rossman, 1984) upon achievement in various areas. Although the findings of such studies vary, it can be safely concluded that contrary to the formerly prevailing view, bilingualism does not retard children's language development and achievement and has been shown to have favorable effects.

Despite some research supporting beneficial effects of bilingual instruction, the widely publicized study undertaken by the American Institutes of Research (AIR) (Danoff, Coles, McLaughlin, Reynolds, 1977a 1977b 1978a 1978b) to assess the impact of the federally funded bilingual education programs concluded that the program was ineffective and that participants' academic achievement gains in reading and mathematics were not significantly different from nonparticipants' gains. Cardenas and Gray (1977) question the validity of the findings. Cardenas noted that the pre-to posttest interval of five months for 50 percent of the projects evaluated was too short to effect any meaningful achievement gains for monolingual Spanish-speaking participants. Gray pointed out that treatment for bilingual education participants varied greatly among projects evaluated, and the pre-test-posttest interval precluded assessment of incremental changes expected over a greater period of time. A number of longitudinal studies are now beginning to appear in the literature that indicate positive long term results from early exposure to bilingual schooling (Leyba, 1978; Powers & Rossman, 1984; Saldate et al., 1985; Flores, 1981). These studies address cognitive gains in reading and math skills. Although it is assumed that bilingual education in early grades will have a positive effect on reducing the rate of retentions and school drop-outs no studies were found that address these variables which are the focus of this study.

Bilingual-bicultural education is a comprehensive educational approach that involves more than just imparting English skills (Anderson and Boyer, 1970). Bilingual education is best defined as academic instruction in two languages, ie the child's native language and English (Cordasco, 1983). All bilingual bicultural education programs

include consideration for the students' cultural heritage and show a common concern for student development in two languages and cognitive achievement in all subject areas. By design, bilingual-bicultural programs are normally placed in elementary school grades K and up through sixth grade. The majority of programs are found in the lower grades. In 1984 forty one percent or 246 federally funded programs were found in Pre-Kindergarten, Kindergarten and Elementary grades exclusively, an additional 16 percent offered bilingual instruction in elementary and junior high grades, an additional 15 percent offered bilingual classes at elementary through twelth grade. This is to serve limited English-proficient students who enter the school system at various levels. In 1984 the Office of Bilingual Education and Minority Language Affairs (OBEMLA) supported 564 bilingual projects serving 182, 583 limited-English-proficient students representing 92 different language groups in elementary and secondary classrooms (U.S. Department of Education, Annual Report, 1984) The length of enrollment for the non-English speaking student is contingent on acquisition of a functional fluency in English. Four states-Massachusetts, Texas, Illinois, and New Jersey-stipulate three years as the minimum duration (United States Commission on Civil Rights, 1975).

The goals of bilingual bicultural education programs are consistent with the general goals of education, to produce a citizen who is a contributing member of society. The ultimate and primary goal is for students to learn English even though, initially, the emphasis is on becoming literate in the learner's native language. Once the student is able to read and write in his/her spoken language, learning a second language is accomplished much faster. Psychologically, initial instruction in the language that is familiar to the student reinforces his/her reality, a necessary link to his/her family and the values that they represent. The family is more likely to support an educational system that acknowledges their important place in the child's world, their heritage which includes language and a history of cultural norms that are different, but not necessarily of less worth, than the dominant societal norms reflected in the school. It is important

to note that some language minority pupils are English speakers when they commence school therefore would not need a period of enrollment in a bilingual bicultural program. Students determined to be limited-English proficient based on special tests of English proficiency are given priority for bilingual instruction. It can be inferred that for English speaking students their parents' language and cultural norms are less different than the school norms and therefore these children can manage the regular curriculum. Bilingual bicultural programs as conceptualized in the 1967 Title VII of the Elementary and Secondary Act are compensatory programs i.e. they are designed to facilitate transition from a "special treatment program" to the regular English instruction program. The 1984 amendments to the Bilingual Education Act, Public Law 98-511 affirms the focus of the Title VII program by substituting the term "transitional bilingual education" for the less specific previously used term, bilingual education. There are those who argue that bilingual bicultural programs should be offerred as an alternative throughout high school for those students who wish to become equally proficient in two languages and cultures. The goals for a maintenance bilingual program are laudable but are not supported in the intent of the existing legislation given the primary mission of the programs as authorized under the Bilingual Education Act Title VII of the Elementary and Secondary Education Act i.e. to provide a transitional bilingual bicultural program that will facilitate movement into the regular curriculum.

The present study examines the longterm impact of one program that was designed as a transitional program for children in elementary grades. Students were placed in the program for varied periods at grades K through sixth grade. In transitional compensatory oriented bilingual programs the objective is to use the students' native language as a beginning foundation to facilitate literacy in the learner's native language and promote gradual phasing in of English as the student's knowledge of first language is sufficient to serve as a base for the new language. The literature indicates that early successful learning experiences are more predictable and likely to become a pattern when the instruction builts on the learner's native language. (Cummins, 1982; Fradd,

1982) The ultimate goal is to graduate the student to an all English curriculum. The bilingual curriculum includes four basic content areas: communication; environmental concepts and relationships; creative expression; and abstract concept development. Communication involves understanding and producing two languages, and the later development of reading and writing skills; environmental concepts and relationships includes the study of social and physical surroundings; creative expression includes both art and music; and abstract concept development includes mathematical concepts, such abstractions as "same" and "different", and the knowledge of letter names (Saville & Troike, 1971). The usual practice is to offer instruction in the native language the initial year and to begin introducing English the second year twenty percent of the time so that by the third year instruction may be half in Spanish and half in English. In the fourth year, the student in most cases, has achieved sufficient knowledge of the second language to be able to move into an all English classroom.

Subject and Education Program

A quasi-experimental design was used to compare two groups of Mexican-American students who had been followed for a period of ten years since enrollment in elementary grades. The experimental group (N=86) had previously received instruction one or more years in an elementary bilingual program. The control group (N=90) consisted of students who had received instruction in a traditional elementary program where all subject matter was presented in English. Both groups were Mexican-American students who came from Low-income households. The dependent variables examined for group comparison purposes included: grade point average, frequency of retentions, and incidence of dropouts during junior high school years and tenth grade.

The bilingual education program of the Houston Independent School District (HISD) began in 1967 in four elementary and two secondary schools where nearly 100% of the students were Mexican American. Enrollment was voluntary, with preference given to children of limited English-speaking ability who came from low-income families. During the first five years, the program enrollment grew from 585 to 1, 550 students in

K-12 (Cortez & Say, Note 1). Seventy-six percent of the program participants were enrolled in grades K-6 for an average time of three years. The program was one of four selected from 175 United States programs reviewed and cited for exemplary status. Recognition was based on demonstrated positive educational outcomes for students in achieving significant gains in English language skills as well as content areas taught in the native language.

This investigation represents a follow up study of the same subjects who were in seventh grade in 1977. The earlier study conducted by the senior author (see Curiel, 1979) examined for comparison purposes sixth and seventh-grade English reading levels, grade point average achieved during grades one through six and for the first year of junior high, plus self-esteem at the end of seventh grade. The earlier study found that shorter (1-3 years) vs longer (4-7 years) periods of time spent in the elementary bilingual program had no effect on the experimental students' seventh-grade school performance as measured by achieved reading level, self esteem scores, and grades obtained. When compared to the control group, the experimental students obtained a significantly higher GPA (p. 03) for grades one through six, and continued to maintain a higher GPA at the end of seventh grade, however, this was found to be not statistically significant. The control (non bilingual) students achieved higher scores on all three measures of Iowa Test of Basic Skills, reading scores i.e. comprehension, language skills, and vocabulary at the completion of sixth-grade, and scored significantly higher only in English language skills at the completion of seventh grade. No significant differences were found between the two groups on total self-concept scores which was measured at the end of seventh grade. Reading scores were not included in this study because the school district used a different instrument to measure reading levels in the subsequent testing period. The data for this study was limited to information found in student files. Contact with students was limited to verification of drop-out status.

The general objective of this study was to examine the long-term impact of early exposure to an elementary bilingual program as this is reflected in grades achieved, number of retentions and incidence of drop-outs. The intent was to limit the investigation to two periods: school functioning in junior high years and the first year (10th grade) of high school. The rationale being that tenth grade performance represents a significant transition period that is associated with stress and a time when students are likely to drop out. In analyizing the student's GPA it was learned that an F grade is given when students are absent ten days in any quarter. It was felt that absenteeism would have an effect on the student's g.p.a. therefore this was examined for purposes of this study. The present study sought to compare the experimental and control group on the following dimensions:

1. Are there significant differences in group grades attained in junior high school (grades seven through ninth)?
2. Are ther significant differences in group grades attained in grade ten?
3. Are there significant differences in group frequency of absenteeism in junior high school (grades seven through ninth)?
4. Are these significant differences in group frequency of absenteeism in grade ten?
5. Are there significant differences in group frequency of retentions in junior high school (grades seven through ninth)?
6. Are there significant differences in group frequency of retentions in grade ten?
7. Are there significant differences in group incidence of drop-outs in junior high?
8. Are there significant differences in group incidence of drop-outs in grade ten?

Methodology

Subjects and Education Program

The subjects in this study were 86 experimental and 90 control Mexican American students who were subjects of two previous studies conducted in 1973-1974 (Cortez & Say, Note 1) and 1977-78 (Curiel, 1979).

The experimental students were exposed bilingually to the same content scope, sequence, and continuity as the control students during the elementary grades. Spanish

reading skills were introduced at the first-grade level and continued progressively at each level. Students were encouraged to use new vocabulary and sentence patterns in the classroom. They were grouped by language proficiency for language arts, mathematics, and science activities. As students showed more proficiency in their second language, they were moved to more advanced classroom groups. All teachers had the required training in bilingual instruction and were assisted by bilingual teacher aides. The bilingual program teacher-pupil ratio was twenty-five to one compared to twenty-nine to one in the regular classrooms. Students entered the bilingual program at varied levels and for different periods of time.

Demographic variables that were collected included (a) the students' age, sex, religion, male/female siblings, ordinal position, and languages spoken in the home; (b) characteristics of the home environment, such as family composition, nature of broken homes, feelings related to childhood home life, and place of orgin (birthplace) for student and parents; (c) socioeconomic-status variables, such as parents' education and occupation, source of employment, level of job responsibility, and home artifacts and personal possessions, such as use and presence of a telephone, radio, television, home library, or automobile; and (d) select school-related variables reflecting seventh-grade student experience, such as home-study time, feelings about school, days absent by year, and the number of times the student was retained in the same grade through tenth grade. Previous investigations have shown a relationship between school-related variables and academic achievement (Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York, 1966).

Results and Discussion

The research questions are best answered by rephrasing them into the language of statistics i.e. as null hypotheses. The traditional levels used to reject the null hypotheses in behavioral social sciences are, of course, $p < .05$ and $p < .01$. Only for GPA and absences were means utilized; for retentions and drop-outs, frequencies were compared via Chi-Square.

To formalize the hypotheses in this study the research questions have been recast as null hypotheses. These are:

1. Are there significant differences in group grades attained in junior high school (grades seven through ninth)?
2. Are ther significant differences in group grades attained in grade ten?
3. Are there significant differences in group frequency of absenteeism in junior high school (grades seven through ninth)?
4. Are these significant differences in group frequency of absenteeism in grade ten?
5. Are there significant differences in group frequency of retentions in junior high school (grades seven through ninth)?
6. Are there significant differences in group frequency of retentions in grade ten?
7. Are there significant differences in group incidence of drop-outs in junior high?
8. Are there significant differences in group incidence of drop-outs in grade ten?

GPA

The GPA means are shown in Table 1 for grades 7, 8, 9 and 10th grade, first year of High School. It will be noted that none of the mean differences reached statistical significance i.e. the F ratios were less than 1 in all four comparisons. The null hypotheses regarding GPA means in junior high school and first year of high school are not rejected. This lack of statistical significance beginning in seventh grade is of some interest. The finding indicates the Bilingual compensatory program did not have a negative effect on the experimental subjects' GPA, achieved in junior and senior high grade periods observed.

TABLE 2

Absences

In Table 2 are found the F ratios when mean number of absences are compared for the two groups during the first, second, and third quarters of the seventh grade and for the first year of High School (10th grade). Data was missing for grades eight and nine.

It is interesting to note that when the mean number of absences are compared for the first quarter the difference is not significant (F is<1); for the second quarter, the difference in the mean number of absences (6.24 for the experimental group and 8.09 for the control group) approaches significance (F 3.39, p .067). For the third quarter, the difference is significant (F 4.31, p .039). Each quarter was approximately twelve weeks long. Weather may have played a part in the low number of absences in the third quarter. But be that as it may, the weather was the same for both the experimental and control groups. Although the null hypothesis is rejected for the first and second quarters of the seventh grade, the null hypothesis is rejected for the third quarter of the seventh grade.

For the two groups in the 10th grade, there is no statistically significant difference in means. In fact, it is only in the 10th grade that the mean number of absences for the bilingual group (total school year) is greater than for the monolingual group (23.35 for the bilingual group compared to 21.96 for the monolingual group). The difference, of course, is not significant since F is less than one.

Further commentary on the tabled findings on GPA and absences does not appear warranted. But for retentions (Table 3) and for dropouts (Table 4), interpretations of findings should be proferred.

TABLE 3

Retentions:

For statistical analyses, Chi Square was used as the inferential statistic since frequencies are involved. We have also included in Table 3 data on the number of retentions in elementary school (grades Kindergarden thru sixth grade). A Chi Square of 12.69 is found which with 2df is significant with a probability of happening by chance 18 times out of 10,000.

In junior high school, differences in frequencies is still statistically significant but the probability level is .041 ($x^2 = 6.41$, df = 2). Again there are significantly more of the

monolinguals who are retained. In the tenth grade, first year of high school the X^2 value of 2.14 has a probability of .34 vis a vis, retentions in elementary school, the null hypothesis is rejected, as is the H_0 regarding retentions in junior high school. However, there is no significant difference in frequencies of retention in the tenth grade between the two groups.

TABLE 4

Dropouts:

Here two Chi-Square were used as the inferential statistics since the data were measured in frequencies rather than means.

In a very real sense these comparisons are the most crucial. Differences in GPA, in retentions, and absences have in common the fact that the students are still in school. In dropouts, students are lost to the educational system; whatever cognitive conative and affective influences that education provides to its students no longer prevail. The data- to use a judgemental word - are chilling. In junior high school only seven of the 86 students who comprised the bilingual group had dropped out. In the monolingual group, 23 had dropped out. The difference in frequencies is highly significant ($X^2 = 8.44$, $p = .004$). Such a difference in frequencies can have happened by chance only four times in a 1,000. For the High School students the difference in frequencies is not as chilling but is nonetheless statistically significant: 17 dropouts (bilingual group) compared with 36 dropouts in the monolingual group (Chi Square = 9.31, $p = .036$).

SUMMARY AND CONCLUSION

Use of GPA means as an outcome criteria is fraught with doubt in view of the strong likelihood of confounding variables. Evidence exists that the bilingual program was experienced as easier in elementary school so that this may have been expressed in higher GPA's for the bilingual group. The bilingual/monolingual grade point average

difference does not prevail in post elementary school grades, either in junior high or the first year of high school, tenth grade (see Table 1).

The findings with regard to mean number of absences in Junior High and Senior High School are of some interest, especially the fact that the means are initially monotonic (first three quarters of the seventh grade) but the differences disappear in the tenth grade (first year of High School - see Table 2).

Interpretations of the findings on retention and drop-outs warrant further discussion since it seems self-evident that these two phenomena have considerable import for educators. To reiterate, differences in frequencies were highly significant in elementary school, significant in Junior High but not significant in High School (first year - see Table 3).

An attempt to interpret these findings (retention) must inevitably - in the absence of data - be speculative. It may be that both groups experienced difficulty learning English in elementary school. The monolingual group was treated by giving them more time in the regular program; the control group's higher age and number of retentions during the first six years of elementary school support this interpretation. Possibly also, the bilingual program served as an alternative to retention in elementary grades for the experimental students in this study. In Junior High School, English proficiency increased for both groups, so that there may have been less need to repeat a grade; thus, in Junior High School the relationship with retention continues, although it becomes considerably weaker. In High School the relationship of retention to linguality is no longer significant (see Table 3).

The results shown in Table 4 are worthy of further discussion. Like retentions, the phenomenon of dropouts is behavioral, observable and not subjective (In this study cognitive and affective gains or losses are not emphasized). The empirical literature indicates that bilingual programs have a positive effect on self-concept and it is presumed that self-esteem is related to drop-out. Certainly this hypothesis warrants further research. Note particularly that in Junior High School, there were three times as

many drop outs in the monolingual group than there were in the bilingual group ($x^2 = 8.4$, $p = .004$). Certainly this finding warrants further research (cross validation).

Whether or not it is low self-esteem that predicts school dropouts is not certain. There is an enormous literature on school dropout which testifies to its adverse sequelae in the world of work and in interpersonal relationships. It cannot be contended that liguality caused drop-out either in Junior High School or High School. But the finding that 15 of the bilingual group dropped out in the first year of high school compared with 28 in the monolingual group should also be investigated. Human behavior is so complex that it is indeed doubtful that there is one single cause of drop-outs. Nonetheless in any prediction equation (multiple regression) it is strongly believed the linguality would be a significant predictor variable.

In brief, influence of the bilingual experience seems to continue into junior high and high school. This is evident in rates of retention and drop-out. The major hurdle for children whose home language is other than English is getting through elementary school. Both groups had difficulty learning English. The monolingual group was given more time in school via retentions. The bilingual group experienced more success in school during the important early years. This was evident in the grades that were obtained, the frequency of retentions and gains that were made in learning to read and write in Spanish and later English (See Cortez & Sag, 1974 for initial study). This study affirms what the literature suggests, that bilingual programs are a deterrent to school retention and dropout. Additional longitudinal studies are recommended that measure the long term impact of early exposure to bilingual education.

TABLE 1

Tests of the Null Hypotheses

re GPA

Grade	Bilingual (N=86) Means	Monolingual (N =90) Means	F	P
7	2.28	2.18	< 1	NS
8	1.92	1.94	< 1	NS
9	1.93	1.93	< 1	NS
10	2.31	2.20	< 1	NS

Table 1b

Grades 1 - 6	2.48	2.23	5.22	.03*

*This finding has not previously been reported and is included despite the fact that the primary focus of this paper is on the influences of linguality in Junior High and first year of High School.

TABLE 2
Tests of the Null Hypotheses re absences (only for seventh grade of Junior high and tenth grade – High School)

Absences by Levels	Bilingual[a] Means	Monolingual[b] Means	F	P
First Quarter				
Seventh Grade	4.00	4.32	< 1	NS
Second Quarter				
Seventh Grade	6.24	8.09	3.39	.067
Third Quarter				
Seventh grade	6.08	8.27	4.31	.04
(Total School Year)				
High School	23.35	21.96	< 1	NS

a N = 86. Analysis adjusted to account for missing data;

b N = 90. Analysis adjusted to account for missing data.

TABLE 3
Tests of Null Hypotheses re
Retentions in Elementary School
Junior High School and Tenth Grade of
High School

Retention by Grade Level	Number of Times Retained: Bilingual[a] Frequencies	Monolingual[b] Frequencies
Elementary School		
None	75	59
Once	11	30
Twice	0	1
N	86	90
$X^2 = 12.69$	df = 2	p = .0018
Junior High School (7th, 8th, 9th)		
None	82	76
Once	2	12
Twice	2	2
	86	90
$X^2 = 6.41$	df = 2	p = .041
High School (10 grade)		
None	56	48
Once	20	17
Twice	3	7
	79	72
$X^2 = 2.14$	df = 2	p = .34

a N = 86. Analysis in grade ten includes 8 cases where student was retained and dropped-out.

b N = 90. Analysis in grade ten includes 10 cases where student was retained and dropped-out.

TABLE 3
Tests of the Null Hypotheses re Dropouts in Junior High and 10th grade of High School

DROPOUTS	BILINGUAL[a] Frequencies	MONOLINGUAL[b] Frequencies	X^2*	PROBABILITY
Junior High	7	23	8.44	p = .004
High School	15	28	5.31	p = .031

*Value of X^2 subsequent to Yate's correction for continuity.

a N = 86. Analysis represents cases where drop-out status was confirmed;

b N = 90. Analysis represents cases where drop-out status was confirmed.

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